

Claims

1. An electronic part inspection apparatus, comprising:
an inspection portion which inspects a part;
a part standby portion in which a part before it is inspected stands by;
a part storage portion which stores a part after it is inspected;
a part transferring device which has an absorptive nozzle that absorbs a part, and which absorbs a part using this absorptive nozzle, and in that state, transfers the part between the part standby portion or part storage portion and the inspection portion;
an image picking-up device which picks up an image of the part that is being transferred by this part transferring device; and
a controlling device which transfers a part to the inspection portion, via a position in which the image picking-up device picks up an image of the state where the part is absorbed by the absorptive nozzle while the part is being transferred from the part standby portion to the inspection portion, and based on that picked-up image result, controls the drive of the part transferring device so that the part is set to the inspection portion.
2. The electronic part inspection apparatus according

to claim 1, wherein the inspection portion, part standby portion, part storage portion and image picking-up device, are disposed in a line within the range where the absorptive nozzle is moved.

3. The electronic part inspection apparatus according to claim 2, wherein the part transferring device has a track which extends in the direction where the inspection portion, part standby portion, part storage portion and image picking-up device are disposed, and moves the absorptive nozzle along this track.

4. The electronic part inspection apparatus according to claim 3, wherein the part transferring device has a pair of the tracks which extends parallel to each other and between which the inspection portion, part standby portion, part storage portion and image picking-up device are disposed, and has a pair of absorptive nozzles which moves along these tracks.

5. The electronic part inspection apparatus according to claim 3, wherein as the part standby portion, part storage portion and image picking-up device, two sets of standby portions, part storage portions and image picking-up device are provided, and two sets of standby portions, part storage portions and image picking-up device are disposed in a line

such that the inspection portion which is common to them is located between them; and further, the part transferring device has a pair of the absorptive nozzles which moves, along the track that is common to them, the part that corresponds to each of the sets.

6. The electronic part inspection apparatus according to claim 3, wherein:

as the part standby portion, part storage portion and image picking-up device, two sets of standby portions, part storage portions and image picking-up device are provided, and two sets of standby portions, part storage portions and image picking-up device are disposed in a line such that the inspection portion which is common to them is located between them; and

the part transferring device has a pair of the tracks which extends parallel to each other and between which the inspection portion and the two sets of part standby portions, part storage portions and image picking-up device are disposed, and has a pair of the absorptive nozzles which moves, along each track, the part that corresponds to each of the sets.

7. An electronic part inspection apparatus comprising:
an inspection portion which inspects a part;
a part standby portion in which a part before it is inspected stands by;

a part storage portion which stores a part after it is inspected; and

a part transferring device which has an absorptive nozzle that absorbs a part, and which absorbs a part using this absorptive nozzle, and in that state, transfers the part between the part standby portion or part storage portion and the inspection portion,

wherein the inspection portion, part standby portion and part storage portion are disposed in a line within the range where the absorptive nozzle is moved.

8. The electronic part inspection apparatus according to claim 7, wherein the part transferring device has a track which extends in the direction where the inspection portion, part standby portion and part storage portion are disposed, and moves the absorptive nozzle along this track.

9. The electronic part inspection apparatus according to claim 8, wherein the part transferring device has a pair of the tracks which extends parallel to each other and between which the inspection portion, part standby portion and part storage portion are disposed, and has a pair of absorptive nozzles which moves along these tracks.

10. The electronic part inspection apparatus according to claim 8, wherein as the part standby portion and part

storage portion, two sets of standby portions and part storage portions are provided, and two sets of standby portions and part storage portions are disposed in a line such that the inspection portion which is common to them is located between them; and the part transferring device has a pair of the absorptive nozzles which moves, along the track which is common to them, the part that corresponds to each of the sets.

11. The electronic part inspection apparatus according to claim 8, wherein:

as the part standby portion and part storage portion, two sets of standby portions and part storage portions are provided, and two sets of standby portions and part storage portions are disposed in a line such that the inspection portion which is common to them is located between them; and

the part transferring device has a pair of the tracks which extends parallel to each other and between which the inspection portion and the two sets of part standby portions and part storage portions are disposed, and has a pair of the absorptive nozzles which moves, along each track, the part that corresponds to each of the sets.

12. The electronic part inspection apparatus according to any one of claims 4, 5, 6, 9, 10 and 11, further comprising:

a detecting device for detecting the absorptive nozzles which move along the track coming close to each other up to a predetermined interval or below; and

a collision-prevention controlling device for, based on the close-state detection by the detecting device, controlling the drive of the part transferring device, so that the absorptive nozzles are prevented from colliding.

13. The electronic part inspection apparatus according to claim 12, in which a pair of absorptive nozzles moves along the track that is common to them, wherein,

based on the close-state detection by the detecting device, the collision-prevention controlling device moves in the opposite direction at least one absorptive nozzle of the pair of absorptive nozzles.

14. The electronic part inspection apparatus according to claim 12, in which absorptive nozzles each move along a pair of the tracks, wherein:

the part transferring device moves at least one absorptive nozzle of the absorptive nozzles in directions other than the directions of the tracks; and

based on the close-state detection by the detecting device, the collision-prevention controlling device moves the absorptive nozzles in directions other than the directions of the tracks.

15. The electronic part inspection apparatus according to any one of claims 1 to 14, wherein at least one of the part standby portion and the part storage portion holds a part which is stored in a container.

16. The electronic part inspection apparatus according to claim 15, wherein:

in the part standby portion, the container is placed which stores a part before it is inspected;

in the part storage portion, among parts after they are inspected, the container which stores a part that is up to standard and a container which stores a part that is below standard are placed; and

the containers are each disposed in a line along the track.

17. The electronic part inspection apparatus according to claim 15 or 16, further comprising a container moving device for moving the container on the horizontal plane, in directions other than the directions in which the absorptive nozzle moves.

18. The electronic part inspection apparatus according to claim 17, wherein the container moving device moves the container in the directions perpendicular to the directions

in which the absorptive nozzle moves.

19. The electronic part inspection apparatus according to claim 17 or 18, wherein:

in the part standby portion, the container is placed which stores a part before it is inspected; and

in the part storage portion, among parts after they are inspected, the container which stores a part that is up to standard and a container which stores a part that is below standard are placed;

the container moving device moves independently each container of each of the portions.

20. The electronic part inspection apparatus according to any one of claims 15 to 19, further comprising:

a container storage portion in which the container is taken from, and put into, the part standby portion or the part storage portion; and

a container transferring device which transfers the container between the part standby portion or the part storage portion and the container storage portion.

21. The electronic part inspection apparatus according to claim 20, wherein the container storage portion is provided in each of the part standby portion and the part storage portion, and the container storage portions are arranged

in the corresponding part standby portion or part storage portion and are disposed in a line along the track.

22. The electronic part inspection apparatus according to claim 20 or 21, further comprising a container moving device, wherein the container moving device has the function of a container transferring device so that it takes and puts a container from and into the container storage portion.

23. The electronic part inspection apparatus according to any one of claims 15 to 22, wherein the part transferring device transfers the container along the track.

24. The electronic part inspection apparatus according to any one of claims 1 to 14, wherein the part standby portion is configured so that a wafer on which a chip part as the part is kept diced stands by.

25. The electronic part inspection apparatus according to any one of claims 1 to 14, wherein:

the part standby portion places, as a unit, a chip part which is the part;

on a side of the part standby portion, a wafer placement portion is provided in which a wafer with the chip part kept diced is placed, and a chip-parts taking-out device is provided which takes out the chip part from this wafer placement portion

to the part standby portion;

this chip-parts taking-out device switches from the state in which the chip part is lifted from the wafer and is held face up, to the state in which the chip part is turned over from this state and is held face down; and

the part transferring device absorbs, using the absorptive nozzle, the chip part which is placed face up in the part standby portion, or the chip part which is placed face down by the chip-parts taking-out device, and transfers it to the inspection portion.

26. The electronic part inspection apparatus according to claim 24 or 25, wherein the part standby portion is further configured so that a plurality of parts which are stored in a container stands by; and the position in which a wafer with a chip part kept diced, or a chip part, stands by, and the position in which a part which is stored in the container stands by, are arranged in a line along the track.

27. The electronic part inspection apparatus according to any one of claims 1 or 14, wherein:

in the part storage portion, a manufacturing device is incorporated for a part storage tape which has a great number of concave portions in a line for the purpose of storing parts, parts after they are inspected are stored in the concave portions of the tape, and the openings of the concave portions

after the parts are stored are covered with a cover tape;
and

the part transferring device stores the parts after
they are inspected in the concave portions of the tape.